

### **REMARKS**

In the Office Action, the Examiner rejected claims 1-4 and 15-18. Claims 5-8 and 19-22 were objected to as being dependent upon a rejected base claim, but were indicated as allowable if rewritten in independent form. By this paper, the Applicants hereby amend claims 1-3, 6, 9-10 and 13 for clarification of certain features to expedite allowance of the present application. These amendments do not add any new matter. Upon entry of these amendments, claims 1-28 remain pending in the present application and are believed to be in condition for allowance. In view of the foregoing amendments and the following remarks, the Applicants respectfully request reconsideration and allowance of all pending claims.

### **Claim Objections**

In the Office Action, the Examiner objected to claims 1 and 9 based on the claim recitation “adapted for.” The Applicants respectfully disagree with the Examiner’s objection. Regarding functional limitations, the Examiner must evaluate and consider the functional limitation, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. *See* M.P.E.P. § 2173.05(g); *In re Swinehart*, 169 U.S.P.Q. 226, 229 (C.C.P.A. 1971); *In re Schreiber*, 44 U.S.P.Q.2d 1429, 1432 (Fed. Cir. 1997). However, in the interest of clarity and to expedite prosecution, the Applicants hereby amend claims 1 and 9. The Applicants respectfully request withdrawal of these claim objections.

### **Claim Rejections under 35 U.S.C. § 102**

In the Office Action, the Examiner rejected claims 1 and 15 under 35 U.S.C. § 102(b) as anticipated by Franke et al. (WO 01/08956, hereinafter “Franke”). Applicants respectfully traverse this rejection.

***Legal Precedent***

First, the pending claims must be given an interpretation that is reasonable and consistent with the *specification*. See *In re Prater*, 415 F.2d 1393, 1404-05, 162 U.S.P.Q. 541, 550-51 (C.C.P.A. 1969) (emphasis added); see also *In re Morris*, 127 F.3d 1048, 1054-55, 44 U.S.P.Q.2d 1023, 1027-28 (Fed. Cir. 1997); see also M.P.E.P. §§ 608.01(o) and 2111. Indeed, the specification is “the primary basis for construing the claims.” See *Phillips v. AWH Corp.*, No. 03-1269, -1286, at 13-16 (Fed. Cir. July 12, 2005) (*en banc*). One should rely *heavily* on the written description for guidance as to the meaning of the claims. See *id.*

Second, interpretation of the claims must also be consistent with the interpretation that *one of ordinary skill in the art* would reach. See *In re Cortright*, 165 F.3d 1353, 1359, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999); M.P.E.P. § 2111. “The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation.” See *Collegenet, Inc. v. ApplyYourself, Inc.*, No. 04-1202, -1222, 1251, at 8-9 (Fed. Cir. August 2, 2005) (quoting *Phillips*, No. 03-1269, -1286, at 16). The Federal Circuit has made clear that derivation of a claim term must be based on “usage in the ordinary and accustomed meaning of the words amongst artisans of ordinary skill in the relevant art.” See *id.*

Third, anticipation under section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under section 102, a single reference must teach each and every limitation of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). Accordingly, the Applicants need only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject

matter. The prior art reference also must show the *identical* invention “*in as complete detail as contained in the ... claim*” to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989).

Fourth, if the Examiner relies on a theory of inherency, the extrinsic evidence must make clear that the missing descriptive matter is *necessarily* present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. *In re Robertson*, 169 F.3d 743, 49 U.S.P.Q.2d 1949 (Fed. Cir. 1999) (Emphasis Added). The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient. *Id.* In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art. *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). The Examiner, in presenting the inherency argument, bears the evidentiary burden and must adequately satisfy this burden. *See id.* Regarding functional limitations, the Examiner must evaluate and consider the functional limitation, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. *See* M.P.E.P. § 2173.05(g); *In re Swinehart*, 169 U.S.P.Q. 226, 229 (C.C.P.A. 1971); *In re Schreiber*, 44 U.S.P.Q.2d 1429, 1432 (Fed. Cir. 1997). If the Examiner believes the functional limitation to be inherent in the cited reference, then the Examiner “must provide some evidence or scientific reasoning to establish the reasonableness of the examiner’s belief that the functional limitation is an inherent characteristic of the prior art.” *Ex parte Skinner*, 2 U.S.P.Q.2d 1788, 1789 (Bd. Pat. App. & Inter. 1986).

**Independent claims 1 and 15**

Amended independent claim 1 recites, *inter alia*, “a consist model configured to compute an objective function from a set of candidate driving plans and a set of model parameters; ... a trajectory optimizer configured to generate said candidate driving plans and to select an optimal driving plan to optimize said objective function subject to a set of terminal constraints and operating constraints.” Similarly, amended independent claim 15 recites, *inter alia*, “computing an objective function from a set of candidate driving plans and a set of model parameters; ... generating said candidate driving plans and selecting an optimal driving plan to optimize said objective function subject to a set of terminal constraints and operating constraints.”

First, as noted above, the Applicants stress that it is improper for the Examiner to rely on the abstract rather than the underlying document itself, particularly in the case of foreign language references. *See Ex parte Jones*, 62 U.S.P.Q.2d 1206 (PTO Bd. App. 2001). As noted by the Board of Patent Appeals and Interferences, the reliance on abstracts is problematic, because abstracts are often prone to erroneous or incomplete descriptions of the invention. “A proper examination under 37 C.F.R. § 1.104 should be based on the underlying documents and translations, where needed.” *Id.* For this reason, the Examiner’s rejection based on Franke is improper and cannot stand. The Applicants respectfully request a full English translation of Franke, such that the record is complete and clear regarding the teachings and deficiencies of Franke.

Second, based on the abstract, Franke fails to teach or suggest computation of an objective function from a set of driving plans and from a set of model parameters. In addition, Franke fails to teach or suggest generation of candidate driving plans and selection of an optimal driving plan to optimize the objective function subject to a set of terminal constraints and operating constraints. Franke teaches energy optimization in a motor vehicle or train using spare time slots in a timetable. The overall route between a point of departure when stopped and a stopping point upon arrival is subdivided into

several sections, whereby each section is provided with a time slot. The optimization calculation is repeated in a cyclic manner during the travel of the vehicle/train. Clearly, Franke fails to disclose computation of an objective function from a set of candidate driving plans and a set of model parameters. Further, Franke fails to teach or suggest optimization of the objective function subject to a set of terminal constraints and operating constraints.

Applicants respectfully submit that Franke cannot support a *prima facie* case of anticipation of independent claims 1 and 15 based upon Franke. Accordingly, Applicants respectfully submit that independent claims 1 and 15 are allowable, and respectfully request the Examiner to reconsider the rejection of these claims.

#### **Claim Rejections under 35 U.S.C. § 103(a)**

The Examiner rejected claims 2, 16 under 35 U.S.C. § 103(a) as obvious over Franke in view of Hawthorne et al. (WO 01/2058, hereinafter “Hawthorne”). The Examiner rejected claims 3-4 and 17-18 under 35 U.S.C. § 103(a) as obvious over Franke in view of Phuyal (U.S. Patent 6,502,033, hereinafter “Phuyal”). The Applicants respectfully traverse these rejections.

#### ***Legal Precedent***

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d. 1430 (Fed. Cir. 1990). Accordingly, to establish a *prima facie* case, the Examiner must not only show

that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). The Examiner must provide objective evidence, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002). Moreover, a statement that the proposed modification would have been “well within the ordinary skill of the art” based on individual knowledge of the claimed elements cannot be relied upon to establish a *prima facie* case of obviousness without some *objective reason to combine* the teachings of the references. *Ex parte Levensgood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993); *In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d. 1313, 1318 (Fed. Cir. 2000); *Al-Site Corp. v. VSI Int’l Inc.*, 174 F.3d 1308, 50 U.S.P.Q.2d. 1161 (Fed. Cir. 1999).

#### ***Claims 2 and 16***

Claim 2 recites “pacing control system configured to generate a set of throttle commands from said optimal driving plan and said consist measurements.” Similarly, claim 16 recites “generating a set of throttle commands from said optimal driving plan and said consist measurements.”

First, the Franke and Hawthorne references, taken alone or in hypothetical combination, fail to teach or suggest the foregoing claim features. The Examiner admitted that Franke does not teach these claim features. However, Hawthorne also fails to teach or suggest generating a set of throttle commands from optimal driving plan and consist measurements. Rather, Hawthorne teaches creating a report from standard and handling data correlating the energy usage for specific categories that include one or more of pneumatic braking, dynamic braking and track topology. Thus, the Franke and Hawthorne references cannot support a *prima facie* case of obviousness of claims 2 and 16. In addition, these claims depend directly or indirectly from independent claims 1 and

15, which recite features missing from the Franke and Hawthorne references, taken alone or in hypothetical combination.

Second, the Examiner has not shown the requisite motivation or suggestion to modify or combine the cited references to reach the present claims. As summarized above, the Examiner must provide objective evidence, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002). In the present rejection, the Examiner combined the cited references based on the *conclusory and subjective statement* that it would have been obvious “to one of ordinary skill in the art at the time of the invention to modify the system of Franke et al. with of Hawthorne et al. by having a control system for generating a set of throttle in order to analyze train handling.” Office Action, page 3. Accordingly, Applicants respectfully request the Examiner to produce *objective evidence* of the requisite motivation or suggestion to combine the cited references, or remove the foregoing rejection under 35 U.S.C. § 103.

For at least these reasons among others, the Applicants respectfully request withdrawal of the foregoing rejections under 35 U.S.C. § 103.

***Claims 3-4 and 17-18***

As noted above, the Examiner rejected claims 3-4 and 17-18 under 35 U.S.C. § 103(a) as obvious over Franke in view of Phuyal. These claims depend directly or indirectly from independent claims 1 and 15, which recite features missing from the Franke and Phuyal references, taken alone or in hypothetical combination. In addition, Applicants stress that the Examiner must provide objective evidence, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references.

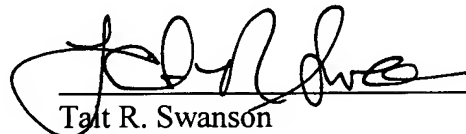
For at least these reasons among others, the Applicants respectfully request withdrawal of the foregoing rejections under 35 U.S.C. § 103.

**Conclusion**

The Applicants respectfully submit that all pending claims should be in condition for allowance. However, if the Examiner believes certain amendments are necessary to clarify the present claims or if the Examiner wishes to resolve any other issues by way of a telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

Date: June 2, 2006

A handwritten signature in black ink, appearing to read 'Tait R. Swanson', is written over a horizontal line.

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